ON SCENE

THE NATIONAL MARITIME SAR REVIEW

DEPARTMENT OF TRANSPORTATION

U.S. COAST GUARD

ISSUE NO. 78

ON SCENE
THE NATIONAL MARITIME SAR REVIEW

THE COXSWAIN IS A LOOKOUT

The boat coxswain is a very busy person. He must listen for radio calls, keep an eye out for emergency signals, boating violations, navigational hazards, all while maintaining proper operation of his own boat. His eyes are the coxswain's most vital tool. A small movement, a distant light, the shape and color of a faraway buoy or ripples in the water - all of these can literally mean life or death for the people we serve, and sometimes ourselves.

Can you see? We often ask this simple question of others, without really meaning to question their eyesight. But it is a question every coxswain should ask himself and his crew. Eyeglasses for those who need them are not less vital to safe boat operation than the steering gear itself. You wouldn't drive in traffic if you couldn't see the cars around you, or the color of the traffic lights. Never go forth in a small boat if your eyes will not focus on the farthest thing you can see. If you need glasses, accept them just as you would a pipe wrench to increase your arm power, and use them. If you suffer from a condition which affects your color perception, make sure your commanding officer or officer in charge is made aware of your condition. Remember: the life you save may be your own.

ON SCENE is a SAR publication published by the Commandant, U. S. Coast Guard as a source of information concerning current and proposed procedures as well as new developments in SAR. Articles contained herein are non-record and non-directive.

EPIRB UPDATE

That extraordinary lifesaver, the Emergency Position Indicating Radio Beacon (EPIRB) continues to be one of the foremost innovations in maritime search and rescue. Capsule summaries of cases coming to Coast Guard Headquarters notice are provided to show the outstanding value of the device. From June 1976 through August 1978 123 EPIRB signals have been reported in the Maritime SAR Region. Of these 60 have been real emergencies and 63 have been false alarms. This emphasizes again that there is a 50/50 chance that any EPIRB signal is the real thing.

14 Dec 76 - Sailing vessel TONGO BUNGAY....Atlantic Ocean....125 miles east of Orlando, FL....reported by overflying aircraft.... 4 persons on board....lost, no communications....located ....no further assistance needed.

23 Jan 77 - Tug RAMPANT....Atlantic Ocean....50 miles southeast of Bermuda....NAS Bermuda and NY OATC received reports of EPIRB....3 persons on board....disabled....located and towed to Bermuda

14 Mar 77 - Republic Sarbee aircraft N27CB ditched....Atlantic Ocean.... Bahamas....alerted by radio....located by ELT....3 persons on board....Rescued by helicopter.

2 Apr 77 - Sailing vessel SALMO....Pacific Ocean....600 miles northeast of Hawaii....EPIRB signal reported by commercial aircraft ....2 persons on board....damaged by weather....located by SAR aircraft....vessel and survivors brought aboard Motor Vessel BRUNO and taken to port.

7 Apr 77 - Sailing vessel AZULAO....Atlantic Ocean....540 miles southeast of New York....Navy aircraft heard EPIRB signal....located by SAR aircraft....1 person on board....vessel capsized....search for survivors resulted in location and rescue of the one person by Motor Vessel SOULI.

11 May 77 - Sailing vessel BONZER....Atlantic Ocean....500 miles southeast of New York....numerous EPIRB signal reports received by Air Traffic Control....4 persons on board....vessel disabled.... located by SAR aircraft....survivors rescued by Motor Vessel CONCORDIA DALMATIA.

2 Jun 77 - Sailing vessel MAYA....Atlantic Ocean....350 miles southeast of New York....EPIRB signal reports received by Air Traffic Control ....3 persons on board....wet, cold, exhausted, no operable radio or navigation equipment....fresh crew put on board and then escorted to port.

2 Jun 77 - Small boat K. DAVENPORT....Atlantic Ocean....400 miles east of Bermuda....EPIRB signal reported by commercial aircraft....1 person on board....located by SAR aircraft....rescued by Motor Vessel SWEETUFLA.

7 Jul 77 - Sailing vessel JESTER....Atlantic Ocean....near Bermuda.... commercial aircraft reported EPIRB signal....7 persons on board....vessel disabled but underway....located by SAR aircraft ....made port safely on own.

9 Jul 77 - Aircraft CESSNA 210....Bahamas....New Beigt Airport, Cat Island....Numerous aircraft reports on ELT signals.... located crashed on approach end of airport....all persons unharmed.

26 Jul 77 - Sailing vessel WINDBORN....Gulf of Mexico....near Yucatan ....reports of EPIRB signals received by Havana, Miami and Houston Air Traffic Centers....located by SAR aircraft.... lost and out of fuel....vessel BAHIA DE NIPE provided a position....vessel proceeded under sail.

17 Aug 77 - Sailing vessel KAHUNA KAI....Pacific Ocean....650 miles southwest of San Francisco....commercial aircraft reported EPIRB signals....located by SAR aircraft....becalmed and out of fuel....Motor Vessel GLOBAL MARITIME provided fuel....proceeded under own power.

11 Sep 77 - Sailing vessel GOD'S TEAR....Atlantic Ocean....off St. Augustine ....EPIRB signals reported to Jacksonville ARTCC....located by SAR aircraft....dismasted/without steering....towed to port by Coast Guard boat.

23 Sep 77 - Sailing dinghy....Pacific Ocean....midway between the mainland and Hawaii....EPIRB reported by overflying aircraft....1 person on board....SAR aircraft located boat....sails and navigation gear lost....rescued by SS CHEVRON ROME....survivor successfullly prosecuted for grossly negligent use of vessel so as to endanger his life.

2 Oct 77 - Aircraft AEROCOUPE (N93793)....Alaska....reported overdue on flight from Sitka to Juneau....search aircraft heard ELT signals....located aircraft and rescued 3 persons on board.

14 Oct 77 - Sailing vessel ARIEL....Atlantic Ocean....200 miles east of New York....EPIRB signals reported to NY OATC....2 persons involved....SAR aircraft located survivors in raft....vessel capsized, dismasted, abandoned....survivors rescued by helicopter.

17 Oct 77 - Sailing vessel (unnamed)....Pacific Ocean....near Kauai, HI.... EPIRB signal reported by air traffic control....man in small raft located by SAR aircraft....26 foot vessel had sunk 12 hours earlier.

15 Nov 77 - Sailing vessel RATTLESNAKE....Atlantic Ocean....vicinity of Grand Turk Island....EPIRB signal reported in vicinity of Grand Turk Island....located by SAR aircraft....5 persons on board....vessel grounded and sunk....survivors rescued from raft and small boat....vessel sank 24 hours earlier.

13 Dec 77 - Sailing vessel SOLAN GOOSE....Atlantic Ocean....vicinity of Sand Shoal Inlet, VA....first alert by flares....then EPIRB activated and heard almost immediately....vessel located aground by helicopter homing on EPIRB.....vessel salvaged and towed to port.

22 Dec 77 - Sailing vessel TSUNAMI....Pacific Ocean....vicinity of Lahaina, Maui, HI....EPIRB signal reports received from FAA....located by SAR aircraft....3 persons on board.... vessel sunk....survivors recovered from liferaft.

26 Jan 78 - Sailing vessel LADY SIGRID....Atlantic Ocean....near Cape Lookout, NC....Helicopter on search for another craft heard EPIRB signal on 243 MHz....4 persons on board....vessel mast broken, sails lost, auxiliary power inoperative....2 persons injured....recovered and towed to port.

19 Feb 78 - Sailing vessel ZEPHYR....Atlantic Ocean....between Bahamas and Cuba....EPIRB signal reports investigated....vessel located by SAR aircraft....operator missing, presumed overboard---never located.

4 Mar 78 - Sailing vessel CT18095....Atlantic Ocean....Great Bahama Bank ....Miami ARTCC received reports of EPIRB signals....2 persons on board....vessel lost mast and out of fuel....SAR aircraft located and delivered fuel....vessel proceeded to port under own power.

5 Jun 78 - Sailing vessel VIXEN....Atlantic Ocean....350 miles southeast of New York....New York and Boston Air Traffic Control received EPIRB signal reports....3 persons on board....blown out sails and navigation gear lost over side, one person sick....located by SAR aircraft....Motor Vessel CONESTOGA evacuated patient and provided navigation tables and fuel ....vessel proceeded to Bermuda under own power.

7 Jun 78 - Sailing vessel ELIEN IVY....Atlantic Ocean....off Wilmington, NC....1 person on board....located by SAR aircraft....vessel lost use of engine---sails blown out....towed to port by Coast Guard cutter.

22 Jun 78 - Sailing vessel MERMAID....Atlantic Ocean....350 miles east of New York....2 persons on board....located by SAR aircraft.... one person injured---broken ribs....removed by research vessel ATLANTIS II.

13 Jul 78 - Sailing vessel CARLA MARIA....Atlantic Ocean....130 miles south of Cape Sable, Nova Scotia....1 person on board....located by SAR aircraft....unseaworthy mast, propeller fouled....towed to port by Canadian Coast Guard cutter.

24 Jul 78 - Tug CAPE SABLE....Pacific Ocean....350 miles east of Honolulu, HI....16 persons on board....located by SAR aircraft....vessel afire, abandoned....all persons found in liferafts in good condition....Motor vessel AVILA recovered survivors.

ITU NOW AIDS RESCUE SERVICES

The International Telecommunications Union (ITU) advises that their Secretariat will provide, free of charge, information available which may help rescue services identify ships in distress or otherwise in need of assistance. Coast Guard Area Communications Centers have telex terminals which can be used to query ITU, if necessary. Queries should be sent during normal office hours (0800 - 1800, Z + 1) to telex number 23 000.

PROGRAMMABLE DESK TOP CALCULATOR—A SAR TOOL

By LT T. P. Dolan, USCG

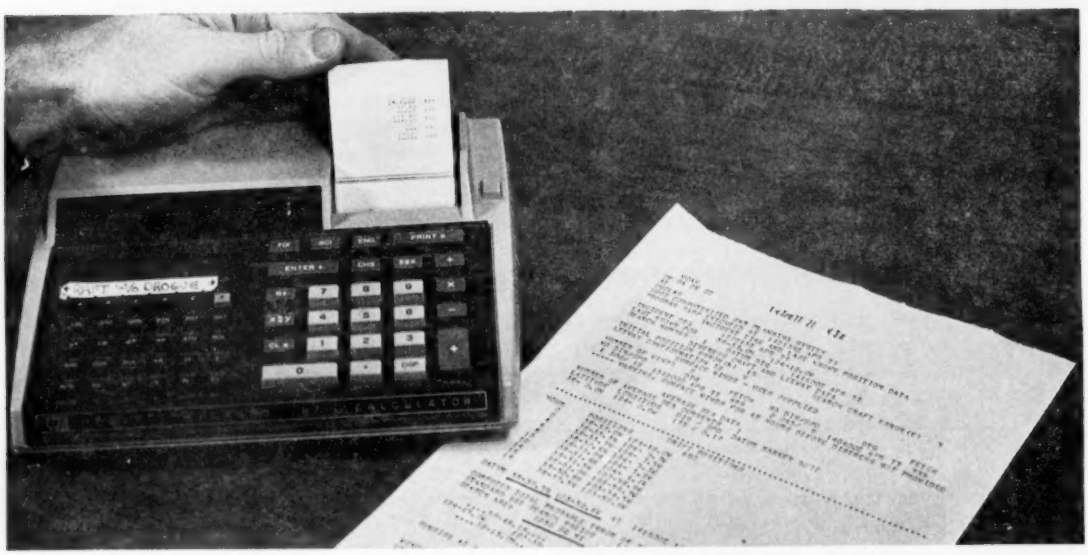
In October of 1976, the Twelfth Coast Guard District Operations Center (OPCEN) purchased a Hewlett Packard HP-97 Programmable Printing Desk Top Calculator to aid watchstanding personnel in computing datum, drifts and performing various other calculations accurately and quickly.

It is the success which the calculator has met with in the OPCEN over the past year that prompts this article to ON SCENE - to "Pass the Word" along to other units who might wish to acquire such a SAR tool.

Though there are many various programmable calculators presently on the market, the Twelfth District OPCEN chose the HP-97 because it was the least expensive model (&750.00) capable of performing the calculations required.

The calculator itself is small and light weight measuring approximately 9" x 8" x 2" and weighing 3 lbs. (See photo) and is equipped with a printer giving it a dual read out capability, displaying data both visually (LED Display) and in printed format.

The true value of the calculator is that, in addition to performing a variety of ordinary mathematical operations, it is capable of performing sophisticated "Pre-Programmed" calculations consisting of up to 224 steps which are stored on strips of magnetic tape for easy use. This permits use of the calculator to do tasks which before were not possible without performing extensive manual computations and requiring the use of plotting gear, tables/graphs and other miscellaneous equipment.



Though the calculator came with several pre-programmed magnetic strips for performing such diverse operations as matrix and vector operations, calculus functions, annuities and compounds amounts etc., it was necessary for the OPCEN to develop its own programs specific to its needs. The actual programming of the calculator is not as formidable a task as it may sound.

Cont...on page 8

F/V JOYCILY CASE—A LESSON ON SURVIVAL AND PERSISTENT SEARCH

Prepared by 13th Coast Guard District

During the early morning hours of 8 September 1978, gale force winds of over 50 knots unexpectedly swept in upon the coastal areas of Washington and Oregon, and brought with them very rough seas. Many single operator fishing boats hove to off the coast were caught by the rough seas and were in distress before the operators were able to get out of their bunks.

During the two day period 080001T to 102400T, CCGD13 had 122 cases over the entire coastline which involved every facet of rescue operations. Virtually every B-O resource, in Groups Astoria and North Bend, was utilized at some time during the two day period. Eight pumps were delivered to sinking vessels by CG boats and aircraft. Hours logged for the 8th were approximately 190 hours for vessels, 27 flight hours, and 16 vehicle hours. Additional resources were provided by USCG Air Station Sacramento (HC-130), CGC CAMPBELL, CGC PT. BARROW, and an HH-52 from USCG Air Station Arcata.

CASE NARRATIVE F/V JOYCILY

On the 8th of September at approximately 1834T, the Operations Center (OPCEN) received information from Group North Bend that the fishing vessel JOYCILY was sinking 12 miles west of Cascade Head (45-03N 124-23W) and at that time, the sole POB was abandoning the boat. Information received from that person indicated he would be putting on a survival suit and taking a crab pot marker with an attached red flag with him.

At 1843T our first unit, a Group Astoria HH-3F, was on scene searching and continued to search until 2016T. At 2000T an HH-52A from Group North Bend arrived on scene and remained until 2115T, at which time fuel constraints required its departure, after negative sighting.

A third resource, MLB 44407 from Station Depoe Bay was on scene the 9th of September at 0045T using an expanding square search. Rough seas and winds hampered the MLB search to such an extent that it was directed to return to station at 0200T.

Due to the numerous SAR cases within the District, OPCEN directed the CGC VENTUROUS to complete refueling, secure from her mid patrol break, and proceed to assist in the search effort. CGC VENTUROUS was underway and enroute at 082156T. By 090918T the CGC VENTUROUS had assumed OSC as directed by SMC (OPCEN), and commenced searching.

During the early morning hours of the 9th of September OPCEN directed a SAR action plan for a first light search using aircraft from Group North Bend and Group Astoria; this search was conducted and continued throughout the day. CGC CAMPBELL, assigned to foreign fisheries patrol and under OPCON of COMPACAREA, joined the search at 1430T. Arrangements were being made to have an HC-130 from USCG Air Station Sacramento relieve CCGD13 helicopters of the search at mid-day.

Throughout the morning of the 9th, the OPCEN continued to conduct an investigation into the background of the POB and possible survival gear available to him. A representative of the survival suit company was contacted by mid-day. From conversation with the representative, it was determined a person could survive at least 68 hours in waters as cold as those the F/V JOYCILY went down in.

At 1639T, the CGC CAMPBELL, in a search directed by CGC VENTUROUS as OSC, recovered Mr. Jamison 22 hours after his vessel sank.

DETERMINATION OF DATUM

The method used to determine an accurate datum was that two datum marker buoys were deployed in the vicinity of the last known position. One each from the Astoria HH-3F and North Bend's HH-52A. When the person was recovered the DMBs were approximately 6 miles apart with debris scattered in a north easterly direction from the innermost. The subject was found within six miles of the DMB, at

the extreme edge of the debris it marked. Also, a SARP program was run and its results, along with "local knowledge" of the area, aided in determining the most probable drift and area to search for the survivor.

Search activity at the time of recovery consisted of CGC VENTUROUS and CGC CAMPBELL conducting creeping lines. The HH-3F and HH-52A were conducting sector searches around the DMBs.

It is firmly believed that the most significant factor in the survival of Mr. Jamison was his wearing of the Imperial Mfg. Survival suit, USCG No. 160.071/1/9. Minor factors in this case were his apparent calm attitude and his psychological make up which was described as being a "hard cookie".

COMPACAREA COMMENTS

The dedication and outstanding efforts of those involved in the massive rescue efforts during the period of 8-10 September serve as a source of pride to all Coast Guardsmen.

On the floor of the Senate, Senator Mark O. Hatfield of Oregon in speaking specifically on the rescue which is the subject of this SAR Case Narrative said, "The massive effort to save the life of this one man reflects the very fiber of our national heritage - that being, that one life is as important as many. The unselfishness and dedication of the Coast Guard represents the very best of our nation. We owe (the U. S. Coast Guard) our deepest appreciation and continued support."

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The calculator is designed so that anyone with a high school level knowledge of mathematics is able to create programs without any previous exposure to computer programming. The user manual for the HP-97 is replete with instructions and numerous examples covering various programming situations which greatly facilitates the programming process for the average person.

At present, the CCGD12 OPCEN has programmed the calculator to:

(1) Calculate datum using any number of sea/wind vectors for any object for which the leeway parameters are known with the same accuracy as the SARP program (in fact, in de-bugging our drift program it was discovered that the SARP program drift function was in error given certain conditions). Output consists of hours of drift, date/time of datum, lat/long of datum, radius of search area, square nautical miles of search area, and the boundaries (lat/long) of the search area.

(2) Calculate the required cell size for a CASP map that one resource could search in one hour.

(3) Calculate great circle distance between 2 points and time required to travel that distance (given SOA).

(4) Calculate the distances from a (distress) position to all 12th District shore stations.

(5) Calculate if a position is within the Yellow Fin Tuna Convention area (off the west coasts of North and South America) and if so, how far inside the area the position is.

Editor's Note: *The first use of a programmable calculator in an OPCEN/RCC was in the late 1960s when then-Commander Richard BROOKS programmed an Olivetti for the Third District. As a result of this, mention of calculators as part of RCC equipment was included in paragraph 242 of the 1973 edition of the National SAR Manual. While assigned to COMLANTAREA's Operations Analysis Branch, Commander Joe DISCENZA programmed a Hewlett-Packard calculator to solve the search problem. The calculator was not pushed at that time because of a desire not to distract from implementation of SARP and CASP. However, since then the programmable calculator has been coming more and more to the fore, as this article illustrates. SAR personnel should be aware that the calculator should be considered as a replacement for manual calculations but not as a replacement, or substitute, for the more sophisticated computer programs. When calculators are acquired, the accuracy of the programming is the responsi-*

bility of the local command since no procedure has yet been established for developing and checking programs for the myriad of calculators on the market. An exception to this was published in COMDTNOTE 16131 of 19 October 1978, Subj: Wind Current; manual computation of, which provides for assistance from the Coast Guard Oceanographic Unit on programming calculators for their new wind current computation method.

A CB ASSIST—PATIENCE AND IMAGINATION PAY OFF IN A CB-SPARKED MISSION

By V. A. Sherman, CDR Flotilla 12 USCG Aux Edmonds, Washington

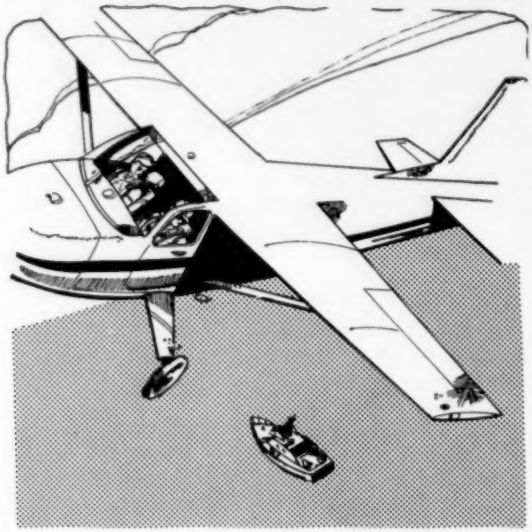
Although CB radio is not required aboard U. S. Coast Guard Auxiliary facilities, due to its recognized drawbacks in marine safety communications, many of the facilities of Flotilla 12 carry CB for their own purposes. Flotilla 12, located at Edmonds, Washington, has found during the past two years that an increasing number of "assists" were sparked by CB communications. This was particularly true during the operational season of 1978, and the case described here typifies one that required both the CB equipment and extreme persistence by the Auxiliarists involved in order to make the assist.

The Auxiliary Facility TOWHEE, a 25-foot Glasply owned by Flotilla 12 members Evan and Carmella Fatland, was on a fishing trip in the Strait of Juan de Fuca on September 23rd. This was the last day of a week-long trip. With a stiff wind blowing and waves at about five feet, the Fatlands intended to stay out only long enough to catch the last "big one," and that they did. A 35-pound king salmon was boated before noon, when they headed back to Sekiu, the small port from which they had been fishing. They had monitored VHF-FM during the morning, but had shut down the CB set due to a phenomenal skip problem that cluttered Channel 9 with signals from South America.

At 1230 hours the Fatlands heard the fishing vessel TRUE call Coast Guard Port Angeles Station on VHF-FM, to report that they had monitored a faint Mayday call on CB Channel 9. Although the Mayday message was broken, they thought the call came from the vicinity of Twin Rivers, about 15 miles east of Sekiu. The TOWHEE then called Port Angeles Station to offer assistance as an Auxiliary facility, and was instructed to attempt to make contact with the distressed vessel. The Coast Guard called the local CB REACT Station and Canadian Coast Guard at Victoria, B.C., asking for assistance in making contact. All were unsuccessful due to the skip problem. Port Angeles Station advised that there had been a Mayday call on CB between Whidbey and Camano Islands, far to the southeast in Puget Sound, and thought that the TRUE might have picked up that call due to the unusual radio conditions.

Aboard the TOWHEE, Evan and Carmella refused to give up. They concentrated on trying to make contact with a CB land station, hopefully one well above sea level that would have a longer range than shipboard CB. By 1415 hours, however, they had just about given up hope. They were just off Sekiu at that point, when a boy's voice was heard loud and clear on CB Channel 9, saying the single word "goodbye." Evan quickly got onto the channel with a request for comeback from whoever transmitted that word. A man's voice was then heard, again loud and clear, advising that he and the boy were in a light plane on the runway of the airport at Sekiu, about to take off for a flight to the east. TOWHEE advised him of the situation regarding the Mayday call, asking the pilot to attempt visual or radio contact with the distressed vessel while in the air.

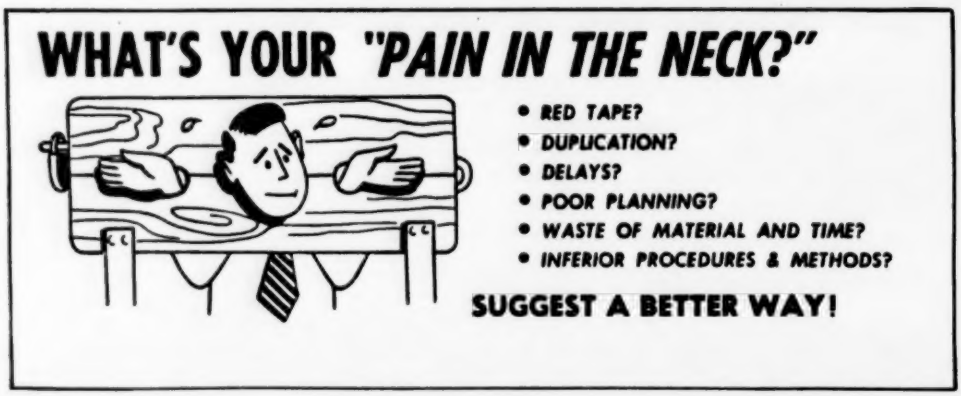
The Fatlands watched the aircraft take off, and monitored his calls on CB. At 1430 hours they heard the pilot responding to an answer to his calls, but could not hear the other side of that conversation. The pilot then advised them that he had located the distressed vessel, a 25-foot pleasure craft that had been drifting in the Strait without power since 1100 hours that morning. The vessel had called for assistance repeatedly since losing power, on both CB and VHF-FM, but that single faint signal monitored by the TRUE was the only one heard.



At 1440 hours Port Angeles Station asked TOWHEE to assist, and assigned a unit case number. From then on the mission was "routine," involving a 12-mile run to the distressed vessel, which was towed into the Silver King Resort and secured at 1650 hours. After filing their report, Evan and Carmella finally got the TOWHEE back to port in Sekiu at 1900 hours. They noted that the TRUE, the fishing vessel which had monitored the CB Mayday call, faithfully stood by throughout the entire emergency, including going to the scene of the distressed vessel and offering any assistance the TOWHEE might require.

We feel this case is a fine example of patience, persistence and imagination in using available communications most effectively, overcoming difficulties arising from freak radio conditions, and we commend the Fatlands for this assist. Because of this and many other assists made during the last couple of years through CB radio, our flotilla now follows a policy of strongly encouraging facility owners to include CB radio in the communications gear aboard their boats.

Editor's Note: *We were pleased to get this fine article about Auxiliary SAR Operations. In recognition of the Auxiliary's increasing role in SAR, we would like to run a regular feature on SAR by Auxiliarists if enough material is received.*



SAR SYSTEM EVALUATION STUDY

Why do we need another study? What if SAR caseload as it is known now doubles in 10 years and resources remain the same or are reduced? What if SAR clientele and case location changed significantly from what existed and was used to obtain present SAR resources? What if additional requirements are laid upon SAR forces without additional people and equipment? Does all this sound familiar? This is why we need another study. We must fix our present position, plot future positions, and then navigate safely past all the hazards to our path. If we do not choose to determine our own destiny, others will do it for us. You can be sure that they are ready and may not necessarily feel it important to fix where we are now, where we really should be, nor will they probably have the same concern that we do about hazards to the program and service.

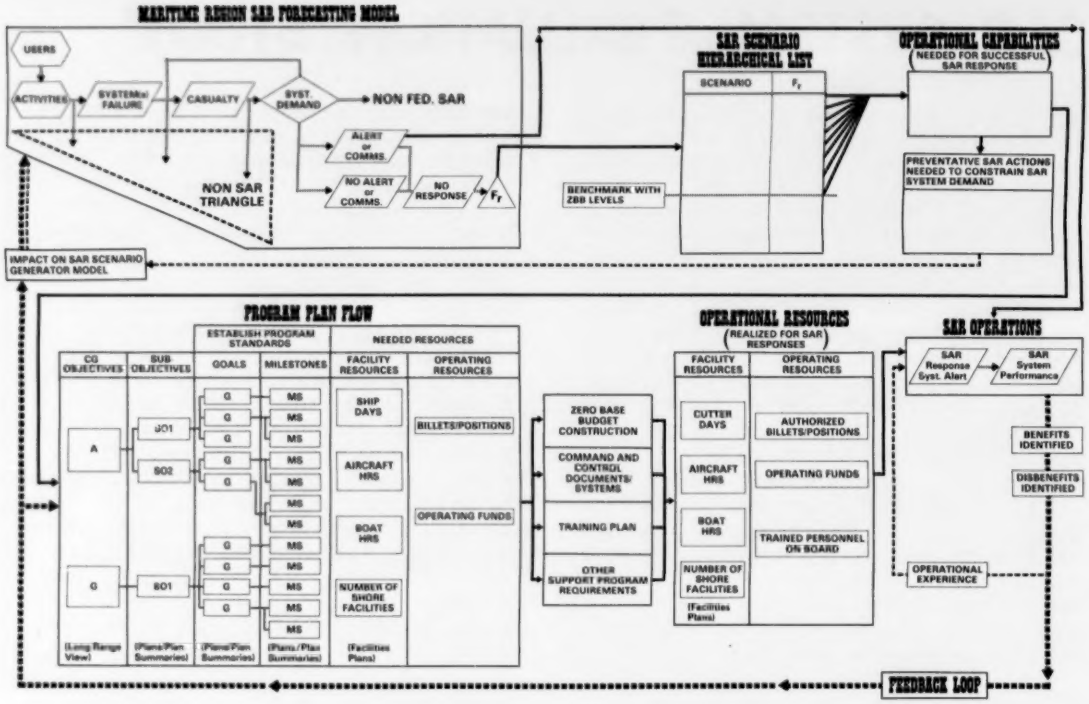
Where we are now, where we should be in 1980, 1985, and 1990 can be obtained by following the below study process for each of these periods.

Program planning and budgetary assembly decisions should be based on information reflecting actual need, acceptable risk, and national fiscal efficiency. Within the SAR program "actual need" is known as SAR demand or type emergency, clientele, and location. The best description of SAR demand is narrative descriptions (scenarios) of events leading up to emergency situations and the events that follow to the conclusion or final outcome. In addition to narrative description, the probability that each event in a scenario will occur is also part of the description of SAR demand. The "Maritime Region SAR Forecasting Model" supplies both the events and probability of events within scenarios resulting in a demand on the SAR system. Within this model, users are various platforms operating in the maritime region. Each user is involved in an activity or activities. The probability distribution of (chance that) this category can be defined as SAR system clientele. We have little control over our clientele. However, we must know about them in terms of the probability that they are there and that we might be impacted upon by their presence. Each "user" is composed of systems, i.e., human systems, electronic systems, propulsion systems, navigation systems, fuel systems, etc. Each system has a probability of failure. Each system failure has a probability that an accident or casualty will result. Each casualty has a probability that the user will need outside help; in other words, a SAR demand is created. There is a probability that need for assistance may or may not be communicated to the system and there also is a probability whether the SAR system can or will respond.

For the purposes of planning and budgetary assembly, the degrees of need must be identified, if priorities are to be established. The best way to determine need, or the worth of doing something, is to force SAR scenarios to conclusions without outside aid and then evaluate the results. Since we are dealing with probabilities of death or property loss, three scenario conclusions can be forced:

Worst outcome
Normal outcome
Best outcome

By mathematically combining the number of deaths and/or value of property lost or destroyed with the probability that a scenario will



occur, we create measurement ability identifying need. This measurement is called "Risk Factor" or F_r.

The "SAR Scenario Hierarchial List" is a list of all scenarios generated by the "Maritime Region SAR Forecasting Model" ranked according to F_r. Obviously the Coast Guard cannot, nor should not, respond to every scenario. Somewhere the line must be drawn dividing out what the Coast Guard will do and what others will do. This is the benchmark shown with zero base budget (ZBB) levels.

If the SAR system responds to a scenario, the system must have certain capabilities to successfully respond. The "Operational Capabilities" list identifies the capabilities required to successfully respond to scenarios above the ZBB benchmark. At this point preventative SAR program actions are identified that can reduce potential demand on the SAR system.

Having defined the problem in terms of probable scenarios, program level responsibility, and operational capabilities the "long range view" is constructed. Commencing the program plan flow process described in the Coast Guard Planning and Programming Manual (COMDTINST M16010.1), the "long range view" is then broken down into ten-year planning horizons within which sub-objectives, goals, milestones, and program standards are determined. This information is transmitted to facility and support managers to develop facility and support plans and plan summaries. From these plans facility and operational resource needs for the program are identified. Actual budget construction, command and control system, training plans and other support program requirements are processed. The success of the action determines the actual operational resources the program manager will have to meet SAR demand.

Prior to accepting the outcome derived above, the results should be tested. Going back to the "Maritime Region SAR Forecasting Model," we will now assume that a scenario's call for help will be responded to by the SAR system in the form of "SAR operations". Through use of analytical models such as "Search and Rescue Simulation Model" (SARSIM), "Facility Readiness Analytical Model" (FACRAN), and through real life experience testing is accomplished.

One thing is for sure, we do not intend to accomplish the study in a vacuum. There are calculated points in the study where field input from the districts will be requested. If anyone else in the field has personal positive and constructive comments concerning the SAR system to the study group we would appreciate hearing from you.

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Washington, D. C. 20590

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